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| 10/634,727 | 08/05/2003 | Jihoon Kang | KIOI:031 | 6668 |

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| EXAMINER | |
|---|---|
| LOUIS JACQUES, JACQUES H | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3661 | |

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/634,727 | KANG ET AL. | |
| | Examiner | Art Unit | |
| | Jacques H Louis-Jacques | 3661 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *23 December 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *7,11 and 12* is/are allowed.

6)☒ Claim(s) *1-3 and 8-10* is/are rejected.

7)☒ Claim(s) *4-6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe [6,687,591] in view of Applicant's Admitted Prior Art.

Abe discloses a method and apparatus for controlling torque-down (discharged) upon gear changing. According to Abe, there is provided an automatic transmission (2) coupled to an engine (1). See figure 1. There is also provided an engine torque control section (6) (column 2) that controls torque outputted from said engine. Abe discloses a discharged torque (torque-down TD) of at least one of said engine and said automatic transmission (figure 1), wherein the engine torque control section controls torque of the engine according to the discharged torque (torque-down). See columns 2-4. Abe also discloses an inertia discharged torque of the engine or the automatic transmission, wherein the engine torque control section controls torque of the engine according to the inertia discharged torque. See columns 3-4. In columns 4-5, Abe further discloses a friction discharged torque of the automatic transmission, wherein the engine torque control section controls torque of the engine according to the friction discharged torque. Furthermore, Abe discloses a revolutionary (rotating) speed of the engine, wherein inertia discharged torque produced by a rotary shaft of the engine is obtained according to

the revolutionary speed of the engine. A rotational speed of an input shaft of the transmission mechanism, according to Abe, is also calculated, wherein the friction-discharged torque produced by rotation of the input shaft of the transmission mechanism is obtained according to the rotational speed See column 4 and figure 4. Abe does not particularly disclose that the transmission is a continuously variable transmission. However, conventionally, as recognized by Applicant, a v-belt type continuously variable transmission (hereinafter referred to as "belt CVT") has been used as an automatic transmission for a vehicle. The belt CVT is constructed such that *a primary pulley and a secondary pulley whose groove widths are variably controlled according to oil pressure supports a V belt by sandwiching it, and power is transmitted by contact frictional force of the V belt.* Further, the belt CVT is provided with a torque converter that is disposed between an engine and the transmission mechanism, so that the torque inputted from the engine is subjected to amplification or the like and then transmitted to the transmission mechanism. The described conventional belt CVT is provided with a torque converter, which amplifies output torque from the engine, and transmits the torque to the transmission mechanism. The output torque from the engine is reduced by torque-down control so as to prevent an excessive torque greater than the allowable input torque of the belt CVT from being inputted to the transmission mechanism of the belt CVT due to torque amplification. See "Description of the Prior Art" on page 1 of the present application. Thus, it would have been obvious to one skilled in the art at the time of the invention to use conventional v-belt continuously variable transmission in the method and apparatus for controlling torque-down (discharged) upon gear changing of Abe

because such modification would an engine control apparatus that prevents engine output torque from being reduced excessively by engine torque-down control, whereby the torque converter would amplify the output torque from the engine, and transmits the torque to the transmission mechanism so as to prevent an excessive torque greater than the allowable input torque of the belt CVT from being inputted to the transmission mechanism of the belt CVT due to torque amplification.

3. Claims 1-3 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikami et al [5,672,138] in view of Applicant's Admitted Prior Art.

Mikami et al discloses a control system for automatic transmission, wherein there is provided an automatic transmission (3) comprising a torque converter and a transmission mechanism (figure 4, column 6) and an engine (2) connected to an input shaft of the torque converter. See figures 1-2. There is also provided an engine torque control section (figure 3) that controls torque outputted from the engine. Mikami et al discloses a discharged torque calculating means or torque down instructing means (8) that calculates a discharged torque (torque-down) of at least one of the engine and the automatic transmission (figures 1 and 2), wherein the engine torque control section controls torque of the engine according to the discharged torque (torque-down). See columns 4, 9-10. As shown in figures 1-3 and discussed in columns 5-8, Mikami et al discloses an inertia discharged torque of the engine or the automatic transmission and a friction discharged torque of the automatic transmission, wherein the engine torque control section controls torque of the engine according to the inertia discharged torque and the friction discharged torque of the automatic transmission. The revolutionary (rotating) speed of the engine

and rotational speed of an input shaft of the transmission mechanism, according to Mikami, are used to calculate the friction discharged torque. See also figure 3. Mikami does not particularly disclose that the transmission is a continuously variable transmission (CVT). However, conventionally, as recognized by Applicant, a V-belt type continuously variable transmission (hereinafter referred to as "belt CVT") has been used as an automatic transmission for a vehicle. The belt CVT is constructed such that *a primary pulley and a secondary pulley whose groove widths are variably controlled according to oil pressure supports a V belt by sandwiching it, and power is transmitted by contact frictional force of the V belt.* Further, the belt CVT is provided with a torque converter that is disposed between an engine and the transmission mechanism, so that the torque inputted from the engine is subjected to amplification or the like and then transmitted to the transmission mechanism. The described conventional belt CVT is provided with a torque converter, which amplifies output torque from the engine, and transmits the torque to the transmission mechanism. The output torque from the engine is reduced by torque-down control so as to prevent an excessive torque greater than the allowable input torque of the belt CVT from being inputted to the transmission mechanism of the belt CVT due to torque amplification. See "Description of the Prior Art" on page 1 of the present application. However, Applicant's admitted prior art does not go into details how the engine torque is controlled based on the discharged toque. Thus, it would have been obvious to one skilled in the art at the time of the invention substitute the automatic transmission from the control system for automatic transmission of Mikami et al by the conventional v-belt continuously variable transmission because

such modification would an engine control apparatus that prevents engine output torque from being reduced excessively by engine torque-down control, whereby the torque converter would amplify the output torque from the engine, and transmits the torque to the transmission mechanism so as to prevent an excessive torque greater than the allowable input torque of the belt CVT from being inputted to the transmission mechanism of the belt CVT due to torque amplification.

4. Claims 1-3, 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al [5,496,230] in view of Applicant's Admitted Prior Art.

Ando et al discloses a control system for automatic transmission, wherein there is provided an automatic transmission (2) comprising a torque converter and a transmission mechanism (figures 1 and 3); an engine (1) connected to an input shaft of the torque converter (figure 1, columns 3-4); an engine torque control section (figure 1) that controls torque outputted from the engine; and discharged torque calculating means for calculating a discharged torque of at least one of the engine and the automatic transmission; and wherein the engine torque control section controls torque of the engine according to the discharged torque calculated by the discharged torque calculating means. See also figures 5-6. Furthermore, Ando et al discloses an inertia discharged torque of the engine or the automatic transmission and a friction discharged torque of the automatic transmission, wherein the engine torque control section controls torque of the engine according to the inertia discharged torque and the friction discharged torque of the automatic transmission. Also, the friction discharged torque is produced based on the

revolutionary (rotating) speed of the engine and rotational speed of an input shaft of the transmission mechanism. See figure 2, columns 5-6. Ando et al does not particularly disclose that the transmission is a continuously variable transmission. However, conventionally, as recognized by Applicant, a V-belt type continuously variable transmission (hereinafter referred to as "belt CVT") has been used as an automatic transmission for a vehicle. The belt CVT is constructed such that *a primary pulley and a secondary pulley whose groove widths are variably controlled according to oil pressure supports a V belt by sandwiching it, and power is transmitted by contact frictional force of the V belt.* Further, the belt CVT is provided with a torque converter that is disposed between an engine and the transmission mechanism, so that the torque inputted from the engine is subjected to amplification or the like and then transmitted to the transmission mechanism. The described conventional belt CVT is provided with a torque converter, which amplifies output torque from the engine, and transmits the torque to the transmission mechanism. The output torque from the engine is reduced by torque-down control so as to prevent an excessive torque greater than the allowable input torque of the belt CVT from being inputted to the transmission mechanism of the belt CVT due to torque amplification. See "Description of the Prior Art" on page 1 of the present application. However, Applicant's admitted prior art does not go into details how the engine torque is controlled based on the discharged toque. Thus, it would have been obvious to one skilled in the art at the time of the invention substitute the automatic transmission from the control system for automatic transmission of Ando et al by the conventional v-belt continuously variable transmission because such modification would

an engine control apparatus that prevents engine output torque from being reduced excessively by engine torque-down control, whereby the torque converter would amplify the output torque from the engine, and transmits the torque to the transmission mechanism so as to prevent an excessive torque greater than the allowable input torque of the belt CVT from being inputted to the transmission mechanism of the belt CVT due to torque amplification.

***Allowable Subject Matter***

5. Claims 7, 11 and 12 are allowed.

6. Claims 4-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Amendment***

7. The amendments along with the arguments filed therewith on December 23, 2004 have been entered and carefully considered by the examiner.

In particular, Applicant has amended claims 1-7 and added new claims 8-12.

As a formal matter, Applicants submit that it is erroneous for the examiner to apply the 102(e) dates based on pre-AIPA because Abe did not issued from an international (PCT) application, let alone an international application filed before November 29, 2000."

It should be noted that the claims were rejected under 102(e) based on the fact that:

> "(e) the invention was described in a patent granted on an application for patent *by another filed in the United States before the invention thereof by the applicant for patent*, or on an

> international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent."

The paragraph relating to the AIPA amendment to 102(e) was used mainly as an informative statement to indicate to Applicant that this reference was not used based on the new 102 as mended by AIPA.

In any event, both Applicant and the examiner recognize that Abe did not issue from an International (PCT) application.

With regard to the essence of the prior art rejection, Applicant argued that "Claim 1 now defines that the discharged torque calculating means calculates a friction discharged torque produced by contact frictional force, generated when the primary and secondary pulleys sandwich the belt therebetween." Applicant then asserted, "Abe, Mikami, and Ando are not related to controlling a continuously variable transmission that uses a belt to transmit power." This recited feature of the transmission is a continuously variable transmission is newly added to the claims.

However, a close of the prior art, even in Applicant's background of the invention, reveals that such feature is well known in the conventional art.

As recognized by Applicant, "[C]onventionally, a V-belt type continuously variable transmission (hereinafter referred to as "belt CVT") has been used as an automatic transmission for a vehicle. The belt CVT is constructed such that *a primary pulley and a secondary pulley whose groove widths are variably controlled according to oil pressure supports a V belt by sandwiching it, and power is transmitted by contact frictional force of the V belt.* Further, the belt CVT is provided with a torque converter that is disposed between an engine and the transmission mechanism, so that the torque inputted from the

engine is subjected to amplification or the like and then transmitted to the transmission mechanism. The described conventional belt CVT is provided with a torque converter, which amplifies output torque from the engine, and transmits the torque to the transmission mechanism. The output torque from the engine is reduced by torque-down control so as to prevent an excessive torque greater than the allowable input torque of the belt CVT from being inputted to the transmission mechanism of the belt CVT due to torque amplification. See "Description of the Prior Art" on page 1 of the present application.

Accordingly, the claims are now rejected as being obvious over the combination Abe [6,687,591], or Mikami et al [5,672,138], or Ando et al [5,496,230], in view of Applicant's Admitted Prior Art.

This new ground of rejection is necessitated by the amendments to the claims. Therefore, this office action is made final.

***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacques H Louis-Jacques whose telephone number is 703-305-9757. The examiner can normally be reached on M-Th 6:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on 703-305-8233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jacques H Louis-Jacques
Primary Examiner
Art Unit 3661

/jlj